Problem Based Learning and Medical Malpractice: Does How You've Been Trained Make a Difference?

David Behling JD, Kristen Low, Richard Severino MS, David W. Boldt MS, and John Hardman MD

Abstract

Testing the hypothesis that physicians trained in problem based learning formats versus traditional lecture based formats develop equally strong physician-patient relationships, the rates of malpractice filings against graduates trained in each format at the John A. Burns' School of Medicine were compared. With the graduation of 10 more PBL classes, statistically significant differences between the two groups could be obtained.

Introduction

Civil liability for physicians' professional conduct, commonly known as "Medical Malpractice" is a judicial phenomenon with serious social, economic and public health ramifications. Medical malpractice merits, and is presently receiving in the current literature, extensive review and investigation. This paper attempts to review a small but potentially important aspect of medical malpractice which has not yet been addressed in the literature: Whether physician trained under a problem based learning (PBL) curriculum have significantly different rates of medical malpractice filings against them in comparison with graduates of a traditional lecture based format. It is hypothesized that there is no statistically significant difference between the rates of medical malpractice between PBL and traditional graduates. This hypothesis is based on the fact that PBL curricula emphasize strong physician-patient relationship development and physician-patient communication.

Background

1. Medical Malpractice:

Economic, Societal and Public Health Costs of Medical Malpractice:

Medical malpractice is a significant legal and societal issue. The average value of a jury verdict in a malpractice action brought in the U.S. is over $201,000. In comparison, the average jury verdict for personal injury torts in general brought in U.S. courts today is only $51,000. Furthermore, medical malpractice amounts for a staggering 25% of all tort jury verdicts over one million dollars. This is by far the lion's share of million dollar verdicts being more than 50% greater than the next largest tort category, products liability at 14%.[1]

Correspondence to;
David Behling
P.O. Box 61549
Honolulu, HI 96839

Presently, as reported by the Civil Trial Network, the rate of medical malpractice cases (and other personal injury torts) filed in this country has increased 20% in the 10 years between 1984-1994.[1] Furthermore, there is no indication that this trend is slacking off. As a result a very large economic cost is imposed upon the medical malpractice liability insurance industry and the physicians they represent. Ultimately the patients bear the burden of a physician's increased cost of doing business by paying higher medical fees.

Societal and public health costs associated with medial malpractice claims in the U.S. are also significant. It has been argued that the prolific nature of malpractice claims weaken the nature of the physician patient relationship through the steadily growing feeling that a patient must constantly be on the lookout for physicians who are not qualified or do not have the patients' best interests in mind.[2] An equal if not greater social cost of the high levels of medical malpractice claims in this country arise from a physicians' reluctance to report possible treatment errors or sources of errors for fear of a patient suing them. This results in public health specialists' inability to properly assess the true amount of physician error actually present in our society.[3] As a result dangerous conditions which otherwise could be discovered and corrected by public health specialists persist. Presently it is believed that physician error is responsible for up to 180,000 deaths a year.[4]

2. Problem Based Learning at the University of Hawaii:

Problem based learning (PBL) is a method of medical education which is largely self-directed by the medical students involved in the program. During the first 2 years of medical training in a PBL format, traditional learning techniques such as lectures and formal reading assignments are largely excluded. The core of the PBL process allows the students to choose their own reading assignments. Twice weekly small group meetings of 5 or 6 students in the presence of a group tutor facilitate and guide the generation of appropriate reading assignments. At these meetings (called "tutorials") the depth of students' understanding of pertinent medical issues is assessed via utilization of health care case problems. These cases consist of fictitious patients and their health problems generated by faculty physicians and scientific staff. When students are exposed to medical issues that they do not yet have a sufficient understanding of they are advised to research these areas in order to diagnose and treat that "patient" in the upcoming meeting. Importantly, one of the primary foci in the tutorial is that the students approach their patients, from the very first tutorial session, with a

"patient centered perspective". The goal is to instill in the student a reflex to recognize patients' potential emotional, social and spiritual problems and concerns. Students are trained to recognize that patients of different social groups, religious backgrounds or geographical regions may have very different primary concerns even if they have the same physical problems.

Concurrently, PBL students are also required to meet weekly in a clinical setting with community physicians and their patients. During this clinical experience, called "preceptorship", students are trained in the taking of history and the performance of physical examinations.

Additionally, PBL students are required to spend half a day a week at a community based medical support organizations such as care programs for the homeless, hospice, critically ill children, student based health organizations, etc. It is the goal of these programs to increase the clinical and community health exposure of PBL students to accelerate their acclamation and competence in working within and utilizing these environments and resources.

As stated above, the purpose of this research is to support the hypothesis that PBL curricula adequately trains physicians to develop equally strong physician-patient relationships when compared with traditionally trained physicians. Authors used the rates of filings of medical malpractice claims against physicians as an objective assessment of the physician-patient relationship. It is not hypothesized or even suggested that traditional or PBL graduates have any greater or lesser medical proficiency or knowledge in the actual rendering of diagnoses and treatment to their patients. It is the opinion of these authors that the instigation of a malpractice action by a patient against their physician is in most cases not a reflection on that physician's ability to render biological treatment. A filing of a medical malpractice claim is instead, largely an indication of a failing in the relationship and communication between that physician and their patient.

3. John A. Burns School of Medicine (JABSOM): A Unique Opportunity To Compare PBL to Traditional Medical Training.

JABSOM is uniquely situated for the comparison of medical malpractice rates between traditionally trained and PBL trained physicians. Between 1975 and 1992 JABSOM followed a traditional lecture based format. However, in 1989, JABSOM adopted a PBL format and graduated its first PBL trained class in 1993. Additionally, JABSOM's graduates have predominately moved into the fields of primary care (61%- 75% between 1988-2001) (Table 1). Because of these facts the authors assert that it is fair to compare the occurrence of malpractice between the two groups. Thus, in a proximally associated time frame (within 25 years) there exist two groups of physicians graduating in essentially the same fields that may be compared.

Additionally, Hawaii is a favorable place to assess the rates of medical malpractice brought against known physicians. Since 1975 the Hawaii law has required that all medical malpractice claims proceed through the Medical Claims Conciliation Panel (MCCP) before a claim may be filed in court. For strategic reasons (which are beyond the scope of this project), this MCCP filing requirement has resulted in many medical malpractice claims being formally instituted (and thus recorded) at the MCCP that would normally have been settled by the defendant or dropped by the plaintiff before there was an official record of claim. Thus giving a clearer picture as to the true numbers of medical malpractice rates than is demonstrated by formal court filings.

Research and Design Methods

As of the writing of this paper JABSOM has graduated 1469 physicians since the inception of its four-year program in 1971. Of these there have been 18 traditionally trained graduating classes and 9 PBL graduating classes. The number of JABSOM graduates in the two groups total 1084 and 489 respectively. However, at the time of data collection from the MCCP in December of 2000, there was only complete data of medical malpractice filings for the years of 1974-1999. Thus, the last two JABSOM PBL graduating classes of 2000 and 2001 were excluded from statistical analysis. In the final analysis the two populations assessed numbered 1084 traditional and 385 PBL graduates.

The rates of malpractice were assessed on the basis of postgraduate year ("PGY"), i.e. first year after graduation, second year after graduation, etc. The number of graduates involved in law suits for a given PGY was considered a positive event without any significance given to the number of suits an individual graduate was involved in for a given year. Statistical analysis of the collected data by means of the Continuity Adjusted chi-square and the Fishers Exact test of the data was then performed.[1]

Results

Table 3 shows the chi-square and Fishers Exact Test values for statistical analysis of the data collected. As demonstrated in Table 3, the population size of the PBL graduates diminishes every PGY by the class size of the graduating class that has not yet reached that year of practice.

Discussion

1. Data:

As shown in Table 3, chi-square and Fishers Exact Test analysis fail to demonstrate any statistically significant difference in the rate of malpractice suit filings for the two study populations. Given the relatively rare event of malpractice filings in a given PGY the PBL population is too small at this time to demonstrate a statistical difference.

Conclusions and Recommendations

The data failed to show a statistical difference between the rates of medical malpractice filings for traditional vs. PBL graduates. This failure is due primarily to the small size of the PBL population in comparison with the traditional graduates. The problem is compounded by the relatively rare occurrence of malpractice suits on an annual basis in any PGY and the fact that for every PGY the population size of the PBL group decreases. Both of these confounding factors will be overcome with time. The small size and decreasing nature of the PBL population is a direct result of the newness of the program and will increase in size and remain stable for adequate statistical analysis as the program continues and graduates are added to the population. Furthermore, the rareness of malpractice suits in any given PGY can be overcome by grouping PGY's together in a "super PGY group" as with the PGY9+ in Table

Table 1. — University of Hawaii JABSOM Residency Matching Summaries. Between 1988-2000, 61-75% of JABSOM graduates entered primary care fields. The top specialties chosen have been Internal Medicine and Family Practice.

PGY-1 Final Placement Results	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Anesthesia	0	0	0	0	0	0	0	2	0	0	0	0	1
Dermatology											1	0	0
Emergency Medicine	0	0	0	2	0	1	1	2	3	4	1	3	2
Family Practice	2	1	1	1	1	5	9 (4)	13 (3)	6 (2)	17 (5)	15 (5)	13 (4)	9 (1)
Family Practice - Ob/Gyn													2
Family Practice - Psychiatry													1
Internal Medicine/Family Practice											1	0	0
Internal Medicine-Total		20 (7)	21 (8)	20 (15)	22 (10)	16 (5)	17 (8)	15 (6)	18*(10)	9 (4)	13 (5)	14 (7)	16 (2)
IM-Straight	21(10)	17	18	19	21	15 (5)	10*(4)	10 (4)	14*(4)	6 (3)	13 (5)	11 (7)	12*(1)
IM-Preliminary		3	3	1	1	1	10 (5)	5 (2)	4 (3)	3 (1)	0	2	4 (1)
Neurology												1	0
Med/Emergency Med												1	0
Med/Peds							1	1 (1)	0	3 (2)	2 (1)	3(2)	2 (2)
Internal Med/Psychiatry											1	0	1
Ob/Gyn		4 (3)	2 (2)	6 (4)	1	4 (3)	3 (2)	3 (2)	1	3	5 (4)	3	4 (1)
Pathology	1	2	1	1 (1)	2	3 (3)	3 (1)	0	1 (1)	1	0	2	1
Pediatrics	11 (5)	6 (3)	11 (7)	3 (2)	6 (4)	3 (3)	13(10*)	3 (1)	7 (4)	7 (4)	9 (4)	6 (3)	3 (2)
Physical Med & Rehab		1	0	2	0	3	0	0	0	0	0	0	0
Psychiatry	3 (2)	7 (3)	2 (1)	1 (1)	3 (2)	3 (2)	2 (1)	4 (4)	3 (1)	2	2*	2	2
Psych/Ped/Child Psych										1	0	2 (2)	0
Radiology									1	0	1	0	0
Neurorad/Neuro/Neurovasc													1
Surgery-Categorical	4 (2)	1	1	4 (3)	2 (2)	2 (1)	0	1	0	2	4 (2)	1 (1)	4* (1)
Surgery-Prelim	1	1	8 (5)	4 (2)	3 (3)	7 (4)	4 (4*)	5 (1)	3 (2)	1 (1)	2 (2)	3 (2)	1
Surgery-Plastic										1	0	0	0
Transitional	4 (4)	2	3 (2)	5 (3)	4 (4)	4 (3)	5 (3)	4*	4	2 (2)	1 (1)	1 (1)	3 (1)
Other									1 (1)	1	1	0	0
TOTAL	53	40	50	49	45	48	61 (34)	53 (22)	48 (24)	54 (18)	58 (24)	54 (22)	53 (10)

* = 1 in Military Program

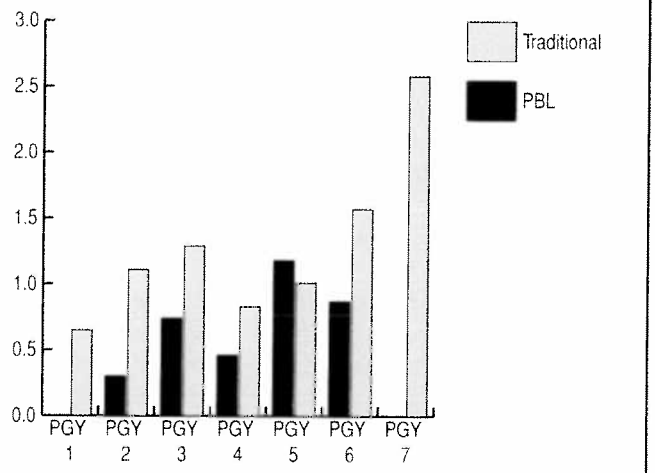
Table 2.— Number of UH JABSOM graduates named in MCCP malpractice claims by post graduate year (PGY).

Year of Graduation	Class size	PGY 1	PGY 2	PGY 3	PGY 4	PGY 5	PGY 6	PGY 7	PGY 8	PGY 9+
1975	61	0	1	1	2	2	3	0	2	13
1976	53	1	0	1	0	1	0	1	1	17
1977	55	0	0	0	0	1	1	3	1	11
1978	62	1	0	2	1	1	0	6	4	18
1979	65	1	1	2	0	1	2	3	2	11
1980	72	0	0	0	1	0	2	1	0	4
1981	79	0	2	2	1	4	5	1	0	7
1982	71	0	3	2	4	0	2	2	0	13
1983	64	1	0	1	0	1	0	0	0	10
1984	63	1	0	0	0	0	0	0	0	8
1985	57	1	1	0	0	0	1	2	1	12
1986	56	0	1	0	0	0	0	1	1	11
1987	61	0	0	0	0	0	0	4	0	5
1988	55	0	0	0	0	0	1	0	0	1
1989	52	0	0	1	0	0	0	1	1	3
1990	51	0	1	2	0	0	0	0	1	0
1991	59	0	2	0	0	0	0	3	0	3
1992	48	1	0	0	0	0	0	0	0	
1993	55	0	0	1	1	1	1	0		
1994	60	0	0	1	0	1	0			
1995	55	0	0	0	0	0				
1996	49	0	1	0	0					
1997	52	0	0	0						
1998	61	0	0							
1999	53	0								
2000	53									

Table 3. — Comparison: Traditional vs. PBL Graduates involved in MCCP malpractice

	PGY1	PGY2	PGY3	PGY4	PGY5	PGY6	PGY7	PGY8	PGY9+
TRADITIONAL									
Pop. Size	1084	1084	1084	1084	1084	1084	1084	1036	977
# of Suits	7	12	14	9	11	17	28	14	144
Per-capita	.65	1.11	1.29	.83	1.01	1.57	2.58	1.35	14.74
PBL									
Pop. Size	385	332	271	219	170	115	55		
# of Suits	0	1	2	1	2	1	0		
Per-capita	0	.30	.74	.46	1.18	.87	0		
Chi Square P Value	.2502	.3086	.6599	.8781	.999	.8551	.4469		
Fisher' s Value	.2003	.3209	.7523	1.000	.6928	1.000	.3949		

Figure 1. — Per-capita malpractice filings for the 2 populations in each post graduate year. Traditional JABSOM graduates have a greater amount of malpractice claims than PBL graduates in postgraduate years 1, 2, 3, 4, 6 and 7.



3 in which there are 144 positive events. Projected power analysis demonstrates that once there are 18 graduating classes of PBL trained physicians, a 5% difference in malpractice suit filings between the two populations in a PGY super grouping would demonstrate a statistically significant difference in the rates of malpractice at the 80% level of certainty.

Interestingly, after final analysis and comparison of the per-capita rates of malpractice filings it appears that there may currently be a non-statistically significant trend of lower filing rates against PBL graduates compared to traditional graduates. Time and future statistical analysis will tell if this trend is significant.

Given the seriousness of the medical malpractice phenomena in this country it is suggested that future evaluation be performed when the JABSOM PBL program has reached a sufficient level of numbers and maturity to determine if PBL training provides equally strong physician-patient relationships, or indeed stronger relationships compared with traditional training formats. If this is established other educational centers may be encouraged to consider the validity of instituting PBL training techniques within in their curricula.

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